GOOD-ARK

U05GU4B48

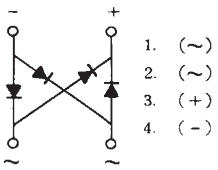
SILICON DIFFUSED JUNCTION TYPE RECTIFIER STACK

Reverse Voltage - 400 Volts
Forward Current - 0.5 Ampere

Application: TELCOMMUNICATION APPLICATIONS

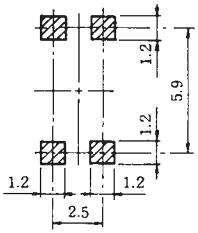
- Repetitive peak reverse voltage: V_{RRM}=400Volts
- Average forward current: I_O=0.5A (T_A=47℃)
- Glass passivated cavity-free junction
- Dual in line type
- Plastic mold package
- Low loss type

POLARITY

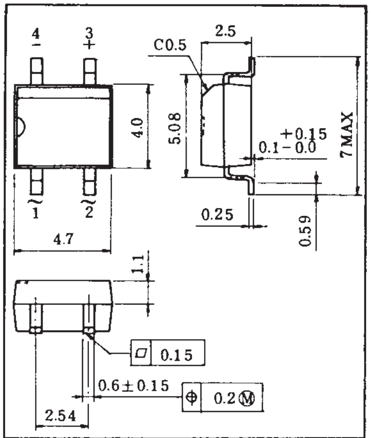


Srandard Soldering Pad

Unit in mm

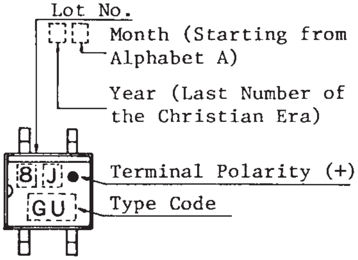


Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	12-5A2A

Weight : 0.13g



Color:
Silver

Symbol	DeviceType
GU	U05GU4B48

Maximum Ratings (T_A=25℃)

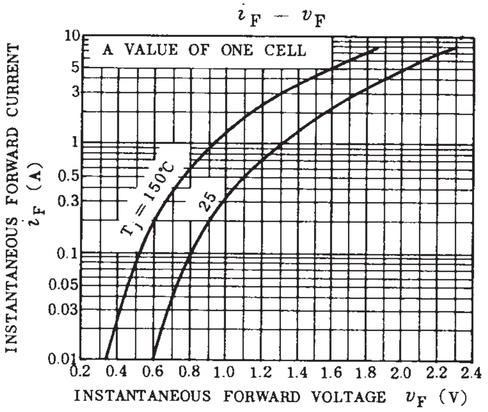
Characteristics	Symbols	Ratings	Units
Repetitive peak reverse voltage	V_{RRM}	400	Volts
Average output rectified current	I_O	0.5 0.8 *	Amp
Peak one cycle surge forward current (Non Repetitive)	I_{FSM}	30 (50Hz) 33 (60Hz)	Amps
Junction temperature	T_J	-40 to 150	℃
Storage temperature range	T_{stg}	-40 to 150	℃

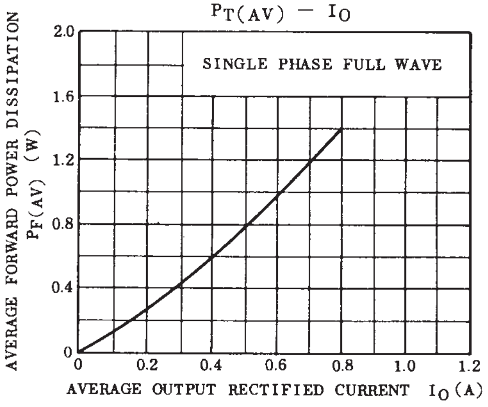
Electrical Characteristics (T_A=25℃)

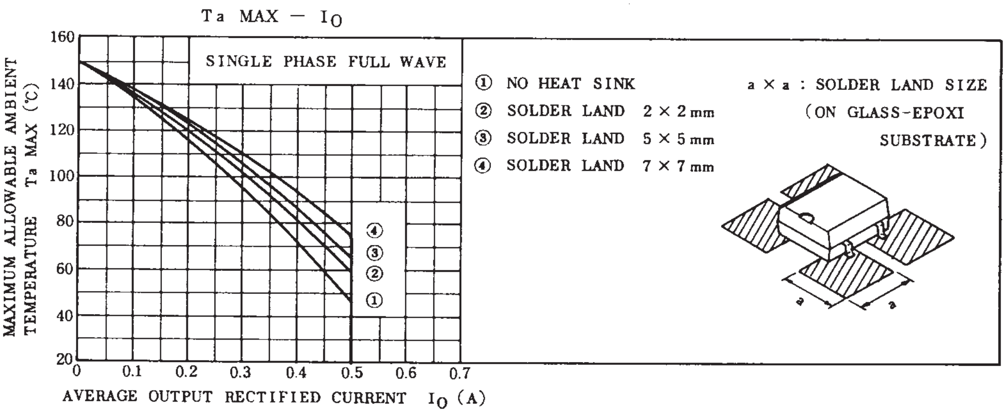
Characteristics	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Peak forward voltage (Note)	V_{FM}	I_{FM}=20mA	-	-	0.65	Volt
Repetitive peak reverse current (Note)	I_{RRM}	V_{RRM}=Rated	-	-	100	uA
Thermal resistance	$R_{th(J-A)}$	Junction to Ambient	- -	- -	130 75 *	℃/W

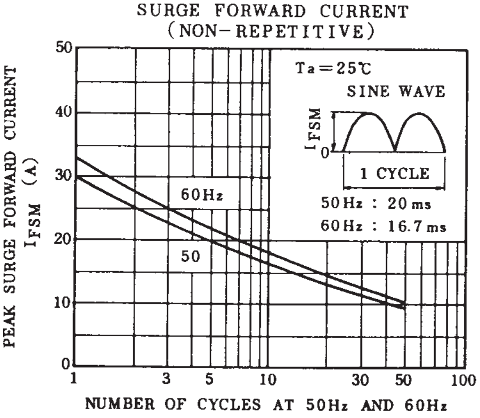
Note: A value of on cell.

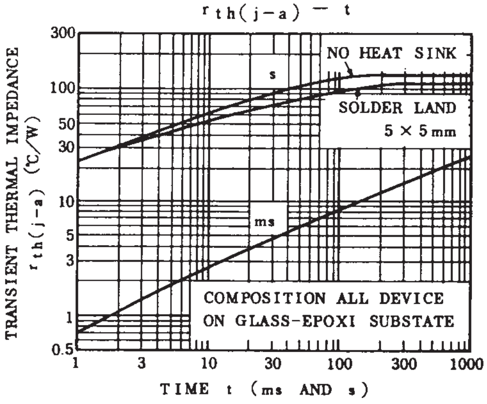
* On alumina substrate

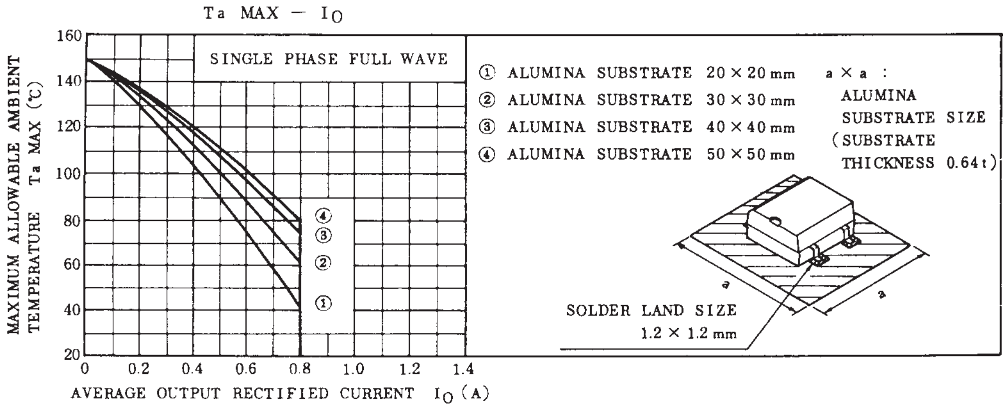

$i_F - v_F$
A VALUE OF ONE CELL
$T_j = 150$℃
25
INSTANTANEOUS FORWARD CURRENT i_F (A)
10
5
3
1
0.5
0.3
0.1
0.05
0.03
0.01
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
INSTANTANEOUS FORWARD VOLTAGE v_F (V)

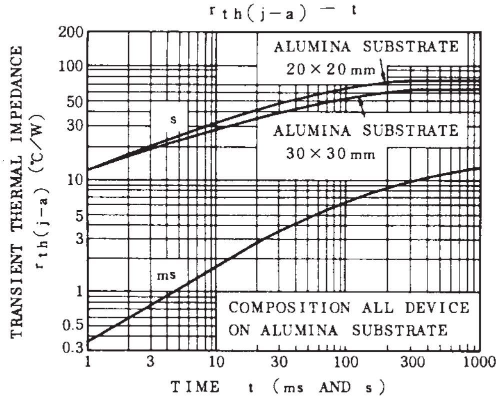

$P_{T(AV)} - I_O$
SINGLE PHASE FULL WAVE
AVERAGE FORWARD POWER DISSIPATION $P_{F(AV)}$ (W)
2.0
1.6
1.2
0.8
0.4
0
0
0.2
0.4
0.6
0.8
1.0
1.2
AVERAGE OUTPUT RECTIFIED CURRENT I_O (A)


Ta MAX — I_O
SINGLE PHASE FULL WAVE
① NO HEAT SINK
② SOLDER LAND 2 × 2 mm
③ SOLDER LAND 5 × 5 mm
④ SOLDER LAND 7 × 7 mm
a × a : SOLDER LAND SIZE
(ON GLASS-EPOXI SUBSTRATE)
④
③
②
①
a
a
MAXIMUM ALLOWABLE AMBIENT TEMPERATURE Ta MAX (℃)
160
140
120
100
80
60
40
20
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
AVERAGE OUTPUT RECTIFIED CURRENT I_O (A)


SURGE FORWARD CURRENT
(NON-REPETITIVE)
Ta = 25℃
SINE WAVE
I_{FSM}
0
1 CYCLE
50 Hz : 20 ms
60 Hz : 16.7 ms
60 Hz
50
PEAK SURGE FORWARD CURRENT I_{FSM} (A)
50
40
30
20
10
0
1
3
5
10
30
50
100
NUMBER OF CYCLES AT 50Hz AND 60Hz


$r_{th(j-a)} - t$
NO HEAT SINK
s
SOLDER LAND
5 × 5 mm
ms
COMPOSITION ALL DEVICE
ON GLASS-EPOXI SUBSTATE
TRANSIENT THERMAL IMPEDANCE $r_{th(j-a)}$ (℃/W)
300
100
50
30
10
5
3
1
0.5
1
3
10
30
100
300
1000
TIME t (ms AND s)


Ta MAX — I_O
SINGLE PHASE FULL WAVE
MAXIMUM ALLOWABLE AMBIENT TEMPERATURE Ta MAX (℃)
160
140
120
100
80
60
40
20
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
AVERAGE OUTPUT RECTIFIED CURRENT I_O (A)
④
③
②
①
① ALUMINA SUBSTRATE 20 × 20 mm
② ALUMINA SUBSTRATE 30 × 30 mm
③ ALUMINA SUBSTRATE 40 × 40 mm
④ ALUMINA SUBSTRATE 50 × 50 mm
a × a : ALUMINA SUBSTRATE SIZE (SUBSTRATE THICKNESS 0.64t)
a
a
SOLDER LAND SIZE 1.2 × 1.2 mm


$r_{th(j-a)}$ — t
TRANSIENT THERMAL IMPEDANCE $r_{th(j-a)}$ (℃/W)
200
100
50
30
10
5
3
1
0.5
0.3
1
3
10
30
100
300
1000
TIME t (ms AND s)
ALUMINA SUBSTRATE 20 × 20 mm
ALUMINA SUBSTRATE 30 × 30 mm
s
ms
COMPOSITION ALL DEVICE ON ALUMINA SUBSTRATE